

Dypl

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

THIS PAGE BLANK (USPTO)

GenCore version 5.1.6
Copyright (c) 1993 - 2003 Compugen Ltd.

OM nucleic - nucleic search, using sw model

Run on: June 17, 2003, 11:16:03 ; Search time 253.713 Seconds
(without alignments)
10331.847 Million cell updates/sec

Title: US-09-807-933B-10

Perfect score: 1164

Sequence: 1 atgaattccacgttgctat.....caggttgcaagaagtaa 1164

Scoring table: IDENTITY NUC

Gapop 10.0 , Gapext 1.0

Searched: 2185239 seqs, 112599159 residues

Total number of hits satisfying chosen parameters: 4370478

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : N_Geneseq_101002.*
1: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1980.DAT.*
2: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1981.DAT.*
3: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1982.DAT.*
4: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1983.DAT.*
5: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1984.DAT.*
6: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT.*
7: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1986.DAT.*
8: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1987.DAT.*
9: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1988.DAT.*
10: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1989.DAT.*
11: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1990.DAT.*
12: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1991.DAT.*
13: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1992.DAT.*
14: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1993.DAT.*
15: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1994.DAT.*
16: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1995.DAT.*
17: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1996.DAT.*
18: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1997.DAT.*
19: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1998.DAT.*
20: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT.*
21: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2000.DAT.*
22: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2001A.DAT.*
23: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2001B.DAT.*
24: /SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2002.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1164	100.0	1164	21	Endoglucanase nucl
2	1164	100.0	1164	24	Rhizopus arrhizus
3	940	80.8	1017	21	Endoglucanase nucl
4	940	80.8	1017	24	Rhizopus arrhizus
5	413	35.5	1017	21	Endoglucanase nucl
6	413	35.5	1017	24	Rhizopus arrhizus
7	398.6	34.2	1083	21	Endoglucanase nucl
8	398.6	34.2	1083	24	Rhizopus arrhizus
9	390.2	33.5	1101	21	Endoglucanase nucl

10	390.2	33.5	1101	24	AAI43245	Rhizopus arrhizus
11	382.8	32.9	1041	21	AAA62731	Endoglucanase nucl
12	382.8	32.9	1041	24	AAI43249	Phycomyces nitens
13	283.4	24.3	1043	21	AAA62732	Endoglucanase nucl
14	283.4	24.3	1043	24	AAI43250	Rhizopus arrhizus
15	221.4	19.0	984	19	AAV16105	Fusarium oxysporum
16	221.4	19.0	1473	12	AAQ14857	Fusarium oxysporum
17	221.4	19.0	1473	13	AAQ26407	Fusarium oxysporum
18	221.4	19.0	1473	13	AAQ26382	Endoglucanase #2.
19	221.4	19.0	1473	13	AAQ25933	Cellulase containe
20	221.4	19.0	1473	13	AAQ29935	Endoglucanase gene
21	221.4	19.0	1473	14	AAQ49942	Endoglucanase enzy
22	221.4	19.0	1473	16	AAZ60179	F. oxysporum endog
23	221.4	19.0	1473	19	AAV16103	Fusarium oxysporum
24	219.8	18.9	1473	14	AAQ41733	Dye transfer inhib
25	207.4	17.8	1423	17	AAI39049	cDNA encoding cell
26	204	17.5	915	19	AAV15075	Hybrid DNA compris
27	202.8	17.4	922	19	AAV15073	Hybrid DNA compris
28	200.6	17.2	928	19	AAV15074	Hybrid DNA compris
29	188	16.2	925	19	AAV15076	Hybrid DNA compris
30	187.6	16.1	672	24	AAI43263	Humicola insolens
31	187.6	16.1	672	24	AAI69425	Humicola insolens
32	186.8	16.0	922	19	AAV15072	Hybrid DNA compris
33	186	16.0	1154	17	AAI39048	cDNA encoding cell
34	184	15.8	1174	17	AAI39050	cDNA encoding cell
35	184	15.8	1174	19	AAV39096	Monocomponent endo
36	181	15.5	807	19	AAV16104	Humicola insolens
37	179.4	15.4	1058	13	AAQ26405	Humicola insolens
38	179.4	15.4	1060	12	AAQ14856	Humicola insolens
39	179.4	15.4	1060	13	AAQ26380	Endoglucanase #1.
40	179.4	15.4	1060	13	AAQ25932	Cellulase containe
41	179.4	15.4	1060	13	AAQ29934	Endoglucanase gene
42	179.4	15.4	1060	13	AAQ30067	Sequence encoding
43	179.4	15.4	1060	14	AAQ41732	Dye transfer inhib
44	179.4	15.4	1060	14	AAQ49941	Endoglucanase enzy
45	179.4	15.4	1060	16	AAZ60178	H. insolens endogl

ALIGNMENTS

RESULT 1
AAA62730
ID AAA62730 standard; DNA: 1164 BP.
XX
AC AAA62730;
XX
DT 25-SEP-2000 (first entry)
XX
DE Endoglucanase nucleotide sequence 5.
XX
KW Endoglucanase: cellulose breakdown; produce pulp; papermaking;
XX animal foodstuff; ss.
XX Mucor circinelloides.
XX
PN WO200024879-A1.
XX
PD 04-MAY-2000.
XX
PF 25-OCT-1999; 99WO-JP05884.
XX
PR 23-OCT-1998; 98JP-0302387.
XX
PA (WEIJ) MEIJI SEIKA KAISHA LTD.
XX Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX
DR WPI; 2000-365117/31.
XX P-PSDB; AAB09825.
XX
PT Endoglucanases of fungal origin with high activity under alkaline

PT conditions for production of paper pulp and animal feedstuffs -
XX Claim 44; Page 122-124; 180pp; Japanese.
XX

CC This sequence encodes an endoglucanase protein. The invention relates
CC to an endoglucanase of fungal origin which can completely break down
CC purified cellulose at a concentration of less than 1mg protein/litre,
CC and produces more than 50% breakdown of cellulose at pH 8.5. The
CC invention includes endoglucanase protein sequences (see
CC AAB09825-B09830), endoglucanase nucleotide sequences (see
CC AA62726-A62732) and primers (AA62733-A62802) which are used in the
CC identification of the endoglucanase sequences, and in the construction of
CC vectors containing the polynucleotides. The endoglucanase enzymes are
CC used for the production of pulp for papermaking and for the production of
CC animal feedstuffs.

XX SQ Sequence 1164 BP; 272 A; 289 C; 266 G; 337 T; 0 other;

Query Match 100.0%; Score 1164; DB 21; Length 1164;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1164; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy	1	ATGAAGTTACCGTTGCTATTACTTCAATCGCTGTTGCACTCGCTCTCAGCTCTTCTGCT	60
Db	1	ATGAAGTTACCGTTGCTATTACTTCAATCGCTGTTGCACTCGCTCTCAGCTCTTCTGCT	60
Qy	61	GAAGCTGCTTTTCAGCTCTGCTATGTCATGTCGATGTCGTCGCTGCTGCTGCT	120
Db	61	GAAGCTGCTTTTCAGCTCTGCTATGTCATGTCGATGTCGTCGCTGCTGCTGCT	120
Qy	121	ACATGTTGATGCTGATCGATCGACCTGTAAGCTCAAAAGGATACAAATATTATTTCTCAA	180
Db	121	ACATGTTGATGCTGATCGATCGACCTGTAAGCTCAAAAGGATACAAATATTATTTCTCAA	180
Qy	181	TGATTTCCCAACCAAGGTTCTCTCATCATCATCATCATCATCATCATCATCATCATCAT	240
Db	181	TGATTTCCCAACCAAGGTTCTCTCATCATCATCATCATCATCATCATCATCATCATCAT	240
Qy	241	TGCGGTGTCATGATGATGAGTGGACCTACCTGTTGTAAGTGGCTCTACTTGGTGGCT	300
Db	241	TGCGGTGTCATGATGATGAGTGGACCTACCTGTTGTAAGTGGCTCTACTTGGTGGCT	300
Qy	301	CAAGAAGGCAACAAATACTACTCTCAATGTTCTCCGGATCCCAAGTAACTGCTGGT	360
Db	301	CAAGAAGGCAACAAATACTACTCTCAATGTTCTCCGGATCCCAAGTAACTGCTGGT	360
Qy	361	AACGCTAGCAGCACCAAGACATCTACCAAGACATCTACTACCAAGGCTACT	420
Db	361	AACGCTAGCAGCACCAAGACATCTACTCAATGTTCTCCGGATCCCAAGGCTACT	420
Qy	421	GCTACTGTCCACCAAGACAGTAACTACCAAGACAACTACCAAGACAACTACCAAGACTAGC	480
Db	421	GCTACTGTCCACCAAGACAGTAACTACCAAGACAACTACCAAGACAACTACCAAGACTAGC	480
Qy	481	ACTACTGCGCTGCTTCTACTTCCACCTCTTCTGCTGGTTTAAAGGCTCTTTCGACG	540
Db	481	ACTACTGCGCTGCTTCTACTTCCACCTCTTCTGCTGGTTTAAAGGCTCTTTCGACG	540
Qy	541	GTTAATCTGGCAGTGGTTCCCAACTCGTTATTTGGGATTTGTTAAAGGCTCTTTCGACG	600
Db	541	GTTAATCTGGCAGTGGTTCCCAACTCGTTATTTGGGATTTGTTAAAGGCTCTTTCGACG	600
Qy	601	TGSCCTTGGAAAAGCTTCTGCTACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT	660
Db	601	TGSCCTTGGAAAAGCTTCTGCTACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT	660
Qy	661	TTATTAGATGCCAATGCTCAAGTGGTTGTAAGTGGTTGTAAGTGGTTGTAAGTGGTTGTAAGT	720
Db	661	TTATTAGATGCCAATGCTCAAGTGGTTGTAAGTGGTTGTAAGTGGTTGTAAGTGGTTGTAAGT	720
Qy	721	AACCAACCTTGGGCTGCTCAATGATGAGTCCGTTTACGCTGCTGCTGCTGCTGCTGCTGCT	780
Db	721	AACCAACCTTGGGCTGCTCAATGATGAGTCCGTTTACGCTGCTGCTGCTGCTGCTGCTGCT	780

Qy	781	GGCTCCAAACGAAGCTGATGCTGTTGTTGCTGTTATGAATGACCTTCACTTCTGGCGCT	840
Db	781	GGCTCCAAACGAAGCTGATGCTGTTGTTGCTGTTATGAATGACCTTCACTTCTGGCGCT	840
Qy	841	GCTTCTGGAAGAAGATGTTGTTCAAGTTACCAACACCGTGGCGATTTAGGCTCTAAC	900
Db	841	GCTTCTGGAAGAAGATGTTGTTCAAGTTACCAACACCGTGGCGATTTAGGCTCTAAC	900
Qy	901	CACTTGATTTGCAAAATGCGGTTGCTGCTTCAATGGCTGCTGCTGCTCAAA	960
Db	901	CACTTGATTTGCAAAATGCGGTTGCTGCTTCAATGGCTGCTGCTGCTCAAA	960
Qy	961	TGGGCGCTCCCAATGATGCTGGGAGCTAGATATGTTGTTGCTGCTGCTGCTGCTGAC	1020
Db	961	TGGGCGCTCCCAATGATGCTGGGAGCTAGATATGTTGTTGCTGCTGCTGCTGCTGAC	1020
Qy	1021	TGTGCTCTCTTCCCTCTGCTTCAAGCTGTTGTAATGAGATTCAACTGGTTCAAG	1080
Db	1021	TGTGCTCTCTTCCCTCTGCTTCAAGCTGTTGTAATGAGATTCAACTGGTTCAAG	1080
Qy	1081	AACTCTGATAACCTTACCATGACCTTCAAGGAAGTTACCTGCTGCTGCTGCTGCTGCT	1140
Db	1081	AACTCTGATAACCTTACCATGACCTTCAAGGAAGTTACCTGCTGCTGCTGCTGCTGCT	1140
Qy	1141	CGCTCAGGTTGCGAAAGAAAGTAA	1164
Db	1141	CGCTCAGGTTGCGAAAGAAAGTAA	1164

RESULT 2

AAL43248
ID AAL43248 standard; DNA; 1164 BP.

XX AAL43248;

XX 22-AUG-2002 (first entry)

XX Rhizopus arrhizus endoglucanase-related coding sequence 5.

XX Zymomyces-originate endoglucanase; cellulose binding domain;
KW fibre processing; waste paper de-inking; paper pulp; ds; gene.

XX Mucor circinelloides.

XX WO200242474-A1.

XX 30-MAY-2002.

XX 21-NOV-2001; 2001WO-JP10188.

XX 21-NOV-2000; 2000JP-0354296.

XX (MEIJ) MEIJI SEIKA KAISHA LTD.

XX Nakane A, Baba Y, Koga J, Kubota H;

XX WPI; 2002-471729/50.

XX P-PSDB; AAO15056.

XX Cellulose-binding domain-lacking Zymomyces-originate endoglucanase,
PT with effect of endoglucanase activity enhanced in processing fibers,
PT deinking waste paper and improving freeness of paper pulp -

XX Disclosure; Page 75-78; 109pp; Japanese.

XX The invention comprises the amino acid and coding sequences of
CC zymomyces-originate endoglucanase enzymes lacking the cellulose
CC binding domain. The zymomyces-originate endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zymomyces-
CC originate endoglucanase enzymes of the invention are useful for
CC processing fibers, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.

22-AUG-2002 (first entry)

Rhizopus arrhizus endoglucanase-related coding sequence 4.

Zygomycetes-originated endoglucanase; cellulose binding domain; fibre processing; waste paper de-inking; paper pulp; ds; gene.

Mucor circinelloides.

WO200242474-A1.

30-MAY-2002.

21-NOV-2001; 2001WO-JP10188.

21-NOV-2000; 2000JP-0354296.

(MEIJ) MEIJI SEIKA KAISHA LTD.

Nakane A, Baba Y, Koga J, Kubota H;

WPI: 2002-471729/50.

P-PSDB; AAO15055.

Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase, with effect of endoglucanase activity enhanced in processing fibers, deinking waste paper and improving freeness of paper pulp

Disclosure; Page 70-73; 109pp; Japanese.

The invention comprises the amino acid and coding sequences of zygomycetes-originated endoglucanase enzymes lacking the cellulose binding domain. The zygomycetes-originated endoglucanase enzymes of the invention have enhanced endoglucanase activity. The zygomycetes-originated endoglucanase enzymes of the invention are useful for processing fibres, de-inking waste paper and improving the freeness of paper pulp - which is particularly applicable in detergent compositions. The present DNA sequence represents an endoglucanase-related gene sequence of the invention.

Sequence 1017 BP; 233 A; 255 C; 236 G; 293 T; 0 other;

Query Match 80.8%; Score 940; DB 24; Length 1017;
Best Local Similarity 98.4%; Pred. No. 7.4e-288; Indels 0; Gaps 0;
Matches 949; Conservative 0; Mismatches 15;

Qy 201 TTCTCTCATCATCATCATGATGTTCCGCTATAGTCAATGCGGTGGCAATTTGGATGGAG 260
Db 54 TTCTGCTGAAGCTGCTCTTTCAGCTCTGCTATGTTCAATGTTGGTGGCAATTTGGATGGAG 113
Qy 261 TGGACCTACTGTTGTGAAGTGGCTCTACTTGGTGGCTCAAGAAGGCAACAATACTA 320
Db 114 TGGACCTACTGTTGTGAAGTGGCTCTACTTGGTGGCTCAAGAAGGCAACAATACTA 173
Qy 321 CTCTCAATGTTCCCGGATCCACAGTAACAATGCTGGTAACGCTAGCAGCACCAAGAA 380
Db 174 CTCTCAATGTTCCCGGATCCACAGTAACAATGCTGGTAACGCTAGCAGCACCAAGAA 233
Qy 381 GACATCTACCAAGACATCTACTACCCGCAAGCTACTGCTACTGTCACCAAGAC 440
Db 234 GACATCTACCAAGACATCTACTACCCGCAAGCTACTGCTACTGTCACCAAGAC 293
Qy 441 AGTAACCAAGACATCTACTACCAAGACATCTACTGCTACTGCTGCTGCTTCTAC 500
Db 294 AGTAACCAAGACATCTACTACCAAGACATCTACTGCTACTGCTGCTGCTTCTAC 353
Qy 501 TTCCACCTCTTCTTCTGCTGGTTACAGGTCTCTCTGGCGGTAAATCTGGCAGTGGTTC 560
Db 354 TTCCACCTCTTCTTCTGCTGGTTACAGGTCTCTCTGGCGGTAAATCTGGCAGTGGTTC 413
Qy 561 CACACTGTTATTTGGGATTTGTTAAAGCTTTCTTCAGCTGCGCTGGAAAAAGCTTCTGT 620
Db 414 CACACTGTTATTTGGGATTTGTTAAAGCTTTCTTCAGCTGCGCTGGAAAAAGCTTCTGT 473
Qy 621 CACTGGTCTCTGTCACACCTGTCCTCCAATGGTATCTTTATATAGATGCCAATGCTCA 680
Db 474 CACTGGTCTCTGTCACACCTGTCCTCCAATGGTATCTTTATATAGATGCCAATGCTCA 533
Qy 681 AAGTGGTTGAACGGTGGTAAATGTTTCATGCTCAACAACCAACCTTGGGCTGTCAA 740
Db 534 AAGTGGTTGAACGGTGGTAAATGTTTCATGCTCAACAACCAACCTTGGGCTGTCAA 593
Qy 741 TCATCAGCTCGCTTACGGTTTCGCTGCTGCTCTATTGCTGCTCAAGCAAGCTGGATG 800
Db 594 TCATCAGCTCGCTTACGGTTTCGCTGCTGCTCTATTGCTGCTCAAGCAAGCTGGATG 653
Qy 801 GTGTTGGCTGTTATGAATGACCTTCACTTCTGCGGCTGCTTCTGGAAGAAGATGGT 860
Db 654 GTGTTGGCTGTTATGAATGACCTTCACTTCTGCGGCTGCTTCTGGAAGAAGATGGT 713
Qy 861 TGTTCAGTTTCAACACACCGGTGGCGATTTAGGCTCTAACACTTTGATTTGCAATGCC 920
Db 714 TGTTCAGTTTCAACACACCGGTGGCGATTTAGGCTCTAACACTTTGATTTGCAATGCC 773
Qy 921 CGGTGGTGGCTGTTATCTTCATGCTGCTGCTCAATGGGCGCTCCCAATGATGG 980
Db 774 CGGTGGTGGCTGTTATCTTCATGCTGCTGCTCAATGGGCGCTCCCAATGATGG 833
Qy 981 CTGGGAGCTAGATATGTTGGTGTGAGCTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG 1040
Db 834 CTGGGAGCTAGATATGTTGGTGTGAGCTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG 893
Qy 1041 TCTTCAAGCTGTTGTTAAATGAGATTCACCTGGTTCAAGAACTCTGATAACCTTACCAT 1100
Db 894 TCTTCAAGCTGTTGTTAAATGAGATTCACCTGGTTCAAGAACTCTGATAACCTTACCAT 953
Qy 1101 GACCTTCAAGAACTTACCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG 1160
Db 954 GACCTTCAAGAACTTACCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG 1013
Qy 1161 GTAA 1164
Db 1014 GTAA 1017

RESULT 4
AAL43247
ID AAL43247 standard; DNA; 1017 BP.
XX
AAL43247;

XX Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PPT with effect of endoglucanase activity enhanced in processing fibers,
PPT deinking waste paper and improving freeness of paper pulp -
XX
XX
XX Disclosure; Page 65-68; 109pp; Japanese.
XX
XX The invention comprises the amino acid and coding sequences of
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zygomycetes-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.
CC The present DNA sequence represents an endoglucanase-related gene
CC sequence of the invention.
XX
XX Sequence 1083 BP; 260 A; 297 C; 231 G; 295 T; 0 other;
SO

Query Match	34.2%	Score 398.6	DB 24	Length 1083
Best Local Similarity	65.6%	Pred. No. 1.9e-107		
Matches 662	Conservative 0	Mismatches 284	Indels 63	Gaps 3

QY	219	ATGTAGTTCCGCTCTATAGTCAATCGCGTGGCATTGGATGGAGTGGACCTACCTGTTGTGA	278
DB	75	ATGTAGCAAGGCTTACTACCAATGTGTGGTAAAGACTGGATGGACCTACTCTGCTGTA	134
QY	279	AAGTGGCTCTACTTTCGGTGTCTCAAGAAGGCAACAAATACTCTCTCAATGTCTTCC---	335
DB	135	ATCTGGCTCTACTTTCGGTGTGATTCTCTGACATCCCTTCTACTCTCCCATGTGTTCCCAA	194
QY	336	-----CGGATCCCAAGTAAACAATGTGTGTAAAGCTAGCAGCACCAAGAAGACATCTAC	389
DB	195	TGAAACCTCACCTCCACTCAACAAATCTTCTCAAAAACCAACACTACTGAGAGTGCCAA	254
QY	390	CAAGACATCTACT-----AC	404
DB	255	GAAGACTACCCTACTAAAGGTTCCAAGAAAGCACCACTACTGAAGCCTCTAAGAAGAC	314
QY	405	CACCGCCAAAGCTACTGCTACTGTACACCAACAGACAGTAAACCAAGACAACCTACCAAGAC	464
DB	315	CACCACTACTGAAGCTTCCAAGAGACACCACTACTGAAGCCTCTAAGAGACCACCAC	374
QY	465	AACTACCAAGACTAGCACTACTGCGCGTGTCTTCTACTTCCACCTCTTCTTCTGCTGGTTA	524
DB	375	TACTACTAAGAAGGCTTCTACCTCCACTTCCTCTTCTCTTCTTCTCTTCTACAAACTA	434
QY	525	CAAGGTCACTCTGCGCGTAAATCTGGCAGTGGTTCCAACTCGTATTGGGATGTGTG	584
DB	435	CTCCGCTGTCTCTGTGTGTGCTCCGGTAAATGTGTGAACCACTCGCTACTGGGATGTGTG	494
QY	585	TAAAGCTTCTTGACGCTGGCTGGAAAGCTTCTGTCACTGGTCTTGTGACACCTGTGC	644
DB	495	TAAAGCTTCTTGACGTTGGCCGGTAAAGCTGATGTCACTCCCTCTGTGGCTCTCTGTAA	554
QY	645	CTCCAATGATATCTCTTTATTAGATGCCAATGCTCAAAGTGGTTGTAAACGGTGGTAATGG	704
DB	555	CAAGATGCTAAGACTCTTGTCTGATACAAACACTCAAAACGGCTGTGTGGTGTAGCAG	614
QY	705	TTTCATGTGTAAACAACAACCACTTGGGCTGTCAATGATGAGTGCCTTACGGTTTCGC	764
DB	615	CTACACCTGTAATGACAATCAACCTTGGGTTGTTAGCGACGACCTTGGCCTACCGTTTCGC	674
QY	765	TGCTGCCTCTATTGTCTGGCTCCACGAGCTGGATGGTGTGTGGCTGTATTGAAATGTAC	824
DB	675	CGCTGCTCCATTTCTGTGGTGTAGCAAGCTACTTGGTGTGTGCTGTTTTCGAACTCAC	734
QY	825	CTTCACTTCTGGCGTGTCTTCTGGAAAGAAAGATGTTTCAAGTTACCAACACCGGTGG	884
DB	735	ATTCACTCTACTGCGGCTCAAGGTAAAGATGTTGTTTCAAGTAAACCAACACTGTTTC	794
QY	885	CGATTTAGGCTCTAAC-----CACTTTGATTTGCAATGCCCCGGTGGTGGCGTTGG	935

795 TGACCTTGGCTTAAACACTGGTGCTCACATTGACATTGCCAAATGCCCGGTGGTGGTGGTGG 854

936 TATCTTTCAATGGCTGTGCTGCTCAATGGGGCGCTCCCAATGATGGCTGGGGAGCTAGATA 995

855 TATCTACAAATGTTGTGCCACTCAATGGGGTGCTCCACCAGATGGTTGGGGTGCAAGATA 914

996 TGTGTGTGTCAGCTCTGTCTCTGACTGTGTGCTCTCTTCCTCTGCTCTTCAAGCTGGTTG 1055

915 CGGGGTGTTTCTTCTGCTCTGACTGTTCTAAACCTTCTCTGCTTCTCAAGCTGGTTG 974

1056 TAAATGGAGATTCAACTGGTTTCAAGAACTCTGATTAACCTTACCATGACCTTCAAGGAAGT 1115

975 TAAATGGAGATTCGGCTGGTTTCAAAACGCTGATTAACCCAAACCATGACCTTACAAACAAGT 1034

1116 TACCTGTCTGCTGCAATTAACCTACTCGCTCAGGTTGCGAAAGAAAGTAA 1164

1035 TACCTGTCCCAAGGCTATCACTGCCAAGTCTGGCTGTTCAGAATAATA 1083

RESULT 9

AAA62727

ID AAA62727 standard; DNA; 1101 BP.

XX AC AAA62727;

XX DT 25-SEP-2000 (first entry)

XX DE Endoglucanase nucleotide sequence 2.

XX KW Endoglucanase; cellulose breakdown; produce pulp; papermaking;

XX KW animal foodstuff; ss.

XX OS Rhizopus oryzae.

XX OS WO200024879-A1.

XX PN 04-MAY-2000.

XX FD 25-OCT-1999; 99WO-JP05884.

XX PF 23-OCT-1998; 98JP-0302387.

XX PR (MEIJ) MEIJI SEIKA KAISHA LTD.

XX PA Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;

XX PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;

XX XX WPI; 2000-365117/31.

XX DR P-FSDB; AAB09822.

XX PT Endoglucanases of fungal origin with high activity under alkaline

XX PT conditions for production of paper pulp and animal feedstuffs -

XX PS Claim 44; Page 108-110; 180pp; Japanese.

XX CC This sequence encodes an endoglucanase protein. The invention relates

XX CC to an endoglucanase of fungal origin which can completely break down

XX CC purified cellulose at a concentration of less than 1mg protein/litre,

XX CC and produces more than 50% breakdown of cellulose at pH 8.5. The

XX CC invention includes endoglucanase protein sequences. (see

XX CC AAB09825-B09830), endoglucanase nucleotide sequences (see

XX CC AAB62726-A62732), and primers (AAB62733-A62802) which are used in the

XX CC identification of the endoglucanase sequences, and in the construction of

XX CC vectors containing the polynucleotides. The endoglucanase enzymes are

XX CC used for the production of pulp for papermaking and for the production of

XX CC animal foodstuffs.

XX SQ Sequence 1101 BP; 268 A; 258 C; 257 G; 318 T; 0 other;

Query Match 33.5%; Score 390.2; DB 21; Length 1101;

Best Local Similarity 64.2%; Pred. No. 6e-105;

Matches 715; Conservative 0; Mismatches 309; Indels 90; Gaps 5

Query Match	33.5%;	Score 390.2;	DB 21;	Length 1101;
Best Local Similarity	64.2%;	Pred. No. 6e-105;		
Matches 715: Conservative	0;	Mismatches 308;	Indels 90;	Gaps 5

Db 295 GTAAGCAACGATTACTACTCTCAATGCTTGGCCCTGAAAGCAATGGCAATAAACTTCT 354
 Qy 364 GCTAGCAGCACCAGACATCTTACCAAGACATCTACTACCACCCCAAGCTACTGCT 423
 Db 355 GAAAGCGCTCATAAAGGACTACTACC----- 381
 Qy 424 ACTGTCAACCAACAGACAGTACCAAGACAACTACCAAGAACTAGCACT 483
 Db 382 -----ACTGCTCCCGCTAAGGAAATTAACAAT 408
 Qy 484 ACTGCCGCTGCTTACTTCCACCTCTTCTGCTGTTACAAAGTCACTCTCTGGCGGT 543
 Db 409 ACTGCCAAAGCTTCAAACTCTTCTTAACCTAGCGGCAATATCTCCATTTCTCTGGTGT 468
 Qy 544 AATATCGGAGGTGTTCCACAACTCGTTATTTGGGATTTGTTAAAGCTTCTTGCAGCTGG 603
 Db 469 GCTCTGGTAACGGGTGTCNACTCTGTTATTTGGGATTTGCTTAAGGCTTCTGTAAGCTGG 528
 Qy 604 CTGTGAAAAGCTTCTGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 663
 Db 529 CCGGTAAAGGCAATGTCAGTTCTCTGCTCAAGTCTCTGTAACAAAGATGGTGTCACTGCC 588
 Qy 664 TTAGATGC---CAATGCTCAAAAGTGGTGTAAACGGTGGTAAATGGTTCATGTGTAAACAAC 720
 Db 589 CTTAGTGACAGCAATGTCAAAGTGGTGTAAACGGTGGTAAACAGTTTACATGTGTAAAGAC 648
 Qy 721 AACCACTGGGCTGTCNATGATGAGCTGGCTTACGGTTTGGCTGCTGCTGCTGCTGCTGCT 780
 Db 649 AACCACTGGGCTGTCNATGATGAGCTGGCTTACGGTTTGGCTGCTGCTGCTGCTGCTGCT 708
 Qy 781 GGCTCCAAAGCAAGCTGGATGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGTGGTGT 840
 Db 709 GGTGGTGGTGAATCTCGCTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT 768
 Qy 841 GCTTCTGGAAGAAGATGGTGTTCAGGTACCAACACCGTGGCGGANTTAGGCTC--- 896
 Db 769 GTTCTGCTGTAAGAAGATGGTGTTCAGGTACCAACACCGTGGCGGANTTAGGCTC--- 828
 Qy 897 -----TAACACTTTGATTCGAATGCGGCTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT 951
 Db 829 ACTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT 888
 Qy 952 GCTGCTCAATGGGGGCTGCCAATGATGGCTGGGGAGCTAGATATAGTGGTGGTGGTGGTGGT 1011
 Db 889 TCCAAGCAATGGGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGT 948
 Qy 1012 GTCTCTGACTGTGCT 1071
 Db 949 GCATCTGACTGTCTAGTCT 1008
 Qy 1072 TGSTTCAGAACTCTGATACCTTACCATGACCTTCAAGGAAGTTACCTGTCTCTGCTGAA 1131
 Db 1009 TGGTTCAAGAACGCTGTATTAACCAAGCATGACTTACAAAGGAAGTTACCTGTCTCTGCTGAA 1068
 Qy 1132 TTAACACTCTGCTCAGGTTGGCAAGAAAGTAA 1164
 Db 1069 ATCAGCCCAAGACAGGTTGTTCAAGAAAAATAA 1101

RESULT 11

AAA62731
 ID AAA62731 standard; DNA; 1041 BP.

XX AAA62731;

XX 25-SEP-2000 (first entry)

XX Endoglucanase nucleotide sequence 6.

XX Endoglucanase; cellulose breakdown; produce pulp; papermaking;

KW animal foodstuff; ss.

OS Phycomyces nitens.
 XX WO200024879-A1.
 PN 04-MAY-2000.
 PD 25-OCT-1999; 99WO-JP05884.
 PF 23-OCT-1998; 98JP-0302387.
 PR (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
 PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
 XX WPI; 2000-365117/31.
 DR P-FSDB; AAB09826.
 XX Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs -
 PS Claim 44; Page 128-129; 180pp; Japanese.
 XX This sequence encodes an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AA62726-A62732), and primers (AA62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal foodstuffs.
 XX SQ Sequence 1041 BP; 225 A; 352 C; 248 G; 216 T; 0 other;
 Query Match 32.9%; Score 382.8; DB 21; Length 1041;
 Best Local Similarity 62.9%; Pred No. 9e-103;
 Matches 628; Conservative 0; Mismatches 337; Indels 33; Gaps 1;
 Qy 200 GTTCTCTCTCATCATCATCATGATGATTCGGTCTATAGTCAATCGGTGGATTTGATGGA 259
 Db 44 GCTCCACTTACGCTGCTGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 103
 Qy 260 GTGACACTTACTGTTGTGAAAGTGGCTCTACTTGGTGTCTCAAGAGAGCAACAAATACT 319
 Db 104 CTGCTCCACCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 163
 Qy 320 ACTCTCAATGCTTTCGGGATCCCA-----CA 346
 Db 164 ACTCTCAATGCTTTCGGGATCCCA-----CA 346
 Qy 347 GTAACATGCTGTTAAGCTAGCAGACCAAGAGACATCTACCAAGACATCTACTACCA 406
 Db 224 CCACCAAGGCTGCCACTTACCAAGGCTCTGTGTCACCAACCAAGGCTGCCACCA 283
 Qy 407 CCGCCAAAGGCTACTGCTACTGTCACCAAGAGAGTAAACCAAGACATCTACTACCAAGACAA 466
 Db 284 CCACCAAGGCTCTGTCACCAAGGCTACTTACTTACTTACTTACTTACTTACTTACTTACTT 343
 Qy 467 CTACCAAGCTAGCAGTACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 526
 Db 344 CCACCAAGACCAACCAAGGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 403
 Qy 527 AGTCACTCTGCGGTAAATCTGCGAGTGGTTCACAACTCGTTATTTGGATTTGTTGTA 586
 Db 404 GCCCAATTTCTGTTGCTTCTCTGGAACGGTTCGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 463
 Qy 587 AAGCTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 646
 Db 464 AGCCCTCTTGGCTGGGACGGAAGGCTTCTGTAACCTAAGGCTGCTACTCACCTGTGCCA 523

647	Qy	CCAATGGTATCTTTATTATAGATCCCAATGCTCAAGATGCTTGTAAACGGTGGTAATGGTT	706
524	Db	AGGATGGTGTACAGCGTCTCGGTTCGATGTGCAGAGCGGTTCGGTCCGGCGGCCAGGCGCT	583
707	Qy	TCAATGTATAACAACAACAACCAACCTTTGGCTGTCAATGATGAGCTCGCTTACGGTTTTTCGCTG	766
584	Db	ACATGTGCAATGACAACACAGCCCTGGGTGTGTCATGACGACCTTGCCTCACGGTTTTTCGCTG	643
767	Qy	CTCGCTCTATTGTCTGGCTTCCAAACGAAGCTGGATGGTGTTCGTGGCTGTATGCAATTGACCT	826
644	Db	CTGCCAGTCTCGGTAGCGCGGTGCCTCTGCATTCGTCTCGGCTGTTTCGAGCTTAACCT	703
827	Qy	TCACCTTTCTGGCGCTGCTTTCTGGAAAGAAGATGGTTGTTCAAGTTTACCACACACCGGTGGCG	886
704	Db	TCACCAACACTGCTGTCTGGCTGGCAAGAAGTTTGTCTGCAGGTCACCAACACCGGTGATG	763
887	Qy	ATTTAGGCTCTAACCACTTTGATTGCAAAATGCCGGTGGTGGGTGGGTATCTTCAATG	946
764	Db	ATCTCAGACCAACCACTTTGATTGAGATGCCCGCGGTGGTGTCTCGGCTACTTCAACG	823
947	Qy	GCTGTGTGCTCAATGGGGCGCTCCCAATGATGGCTGGGAGCTAGATATGTGGTGTCA	1006
824	Db	GCTGCCAGTCCCAGTGGAAACACCAACCCGATGGCTGGGGTGTCTCGCTATGGCGGTATTA	883
1007	Qy	GCTCTGTCTGTAGTGTGGCTCTCTTCCCTCTGTCTTTCAAGCTGGTGTGTAATGGAGAT	1066
884	Db	GCTCTATTTTCAGATGTGCGACAAGCTTCTCATCCCAAGTTTGCAGGGCTGGTTGCAAGTGGAGAT	943
1067	Qy	TCAACTGGTTTCAAGAACTCTGTATAACCTTACCATGACCTTTCAGGAAGTTTACCTGTCCCTG	1126
944	Db	TCGGATGGTTTCAGNAGCTGTACNACCAGAGGTCACCTTCNAGGCTGTTTACTTGCCTTG	1003
1127	Qy	CTGAAATTAACTACTTCGCTCAGGTTTGCAGAAAGAAAGTAA	1164
1004	Db	CCGAGATCATTTGCCAAGACTGGTTTGCAGGCGCCAGTAA	1041

RESULT 12

AAL43249

AA13242
ID AAL43249 standard: DNA: 1041 BP.

25

AC AAL43249:

XXXXXXXXXXXX

DT 22-AUG-2002 (first entry)

DI 2002-AUG-22 (1116C ENCLOSURE)
XX

phycomycetes nitens endoglucanase-related coding sequence

DE MYCOMYCES итселя ендоутицапаве-геталеа соотнг sequence.
XX

XX
KW
Zusammengefasst: collagen binding domain.

KW zygomycetes-originated endoglucanase; cellulose binding domain; fibre processing; waste paper de-inking; paper mill; ds: conc

kw fibre processing; waste paper de-inking; paper pulp; as; gene.
vv

2004
 2005
 2006
 2007
 2008
 2009
 2010
 2011
 2012
 2013
 2014
 2015
 2016
 2017
 2018
 2019
 2020
 2021
 2022
 2023
 2024
 2025
 2026
 2027
 2028
 2029
 2030
 2031
 2032
 2033
 2034
 2035
 2036
 2037
 2038
 2039
 2040
 2041
 2042
 2043
 2044
 2045
 2046
 2047
 2048
 2049
 2050
 2051
 2052
 2053
 2054
 2055
 2056
 2057
 2058
 2059
 2060
 2061
 2062
 2063
 2064
 2065
 2066
 2067
 2068
 2069
 2070
 2071
 2072
 2073
 2074
 2075
 2076
 2077
 2078
 2079
 2080
 2081
 2082
 2083
 2084
 2085
 2086
 2087
 2088
 2089
 2090
 2091
 2092
 2093
 2094
 2095
 2096
 2097
 2098
 2099
 2100
 2101
 2102
 2103
 2104
 2105
 2106
 2107
 2108
 2109
 2110
 2111
 2112
 2113
 2114
 2115
 2116
 2117
 2118
 2119
 2120
 2121
 2122
 2123
 2124
 2125
 2126
 2127
 2128
 2129
 2130
 2131
 2132
 2133
 2134
 2135
 2136
 2137
 2138
 2139
 2140
 2141
 2142
 2143
 2144
 2145
 2146
 2147
 2148
 2149
 2150
 2151
 2152
 2153
 2154
 2155
 2156
 2157
 2158
 2159
 2160
 2161
 2162
 2163
 2164
 2165
 2166
 2167
 2168
 2169
 2170
 2171
 2172
 2173
 2174
 2175
 2176
 2177
 2178
 2179
 2180
 2181
 2182
 2183
 2184
 2185
 2186
 2187
 2188
 2189
 2190
 2191
 2192
 2193
 2194
 2195
 2196
 2197
 2198
 2199
 2200
 2201
 2202
 2203
 2204
 2205
 2206
 2207
 2208
 2209
 2210
 2211
 2212
 2213
 2214
 2215
 2216
 2217
 2218
 2219
 2220
 2221
 2222
 2223
 2224
 2225
 2226
 2227
 2228
 2229
 2230
 2231
 2232
 2233
 2234
 2235
 2236
 2237
 2238
 2239
 2240
 2241
 2242
 2243
 2244
 2245
 2246
 2247
 2248
 2249
 2250
 2251
 2252
 2253
 2254
 2255
 2256
 2257
 2258
 2259
 2260
 2261
 2262
 2263
 2264
 2265
 2266
 2267
 2268
 2269
 2270
 2271
 2272
 2273
 2274
 2275
 2276
 2277
 2278
 2279
 2280
 2281
 2282
 2283
 2284
 2285
 2286
 2287
 2288
 2289
 2290
 2291
 2292
 2293
 2294
 2295
 2296
 2297
 2298
 2299
 2300
 2301
 2302
 2303
 2304
 2305
 2306
 2307
 2308
 2309
 2310
 2311
 2312
 2313
 2314
 2315
 2316
 2317
 2318
 2319
 2320
 2321
 2322
 2323
 2324
 2325
 2326
 2327
 2328
 2329
 2330
 2331
 2332
 2333
 2334
 2335
 2336
 2337
 2338
 2339
 2340
 2341
 2342
 2343
 2344
 2345
 2346
 2347
 2348
 2349
 2350
 2351
 2352
 2353
 2354
 2355
 2356
 2357
 2358
 2359
 2360
 2361
 2362
 2363
 2364
 2365
 2366
 2367
 2368
 2369
 2370
 2371
 2372
 2373
 2374
 2375
 2376
 2377
 2378
 2379
 2380
 2381
 2382
 2383
 2384
 2385
 2386
 2387
 2388
 2389
 2390
 2391
 2392
 2393
 2394
 2395
 2396
 2397
 2398
 2399
 2400
 2401
 2402
 2403
 2404
 2405
 2406
 2407
 2408
 2409
 2410
 2411
 2412
 2413
 2414
 2415
 2416
 2417
 2418
 2419
 2420
 2421
 2422
 2423
 2424
 2425
 2426
 2427
 2428
 2429
 2430
 2431
 2432
 2433
 2434
 2435
 2436
 2437
 2438
 2439
 2440
 2441
 2442
 2443
 2444
 2445
 2446
 2447
 2448
 2449
 2450
 2451
 2452
 2453
 2454
 2455
 2456
 2457
 2458

OS
v.v
phycomyces nltens'.

[illegible]

PN WO200242474-A1.

[illegible]

PD 30-MAY-2002.

XX

PF 21-NOV-2001; 2001WO-JP10188.

XX

PR 21-NOV-2000; 2000JP-0354296.

CC The invention comprises the amino acid and coding sequences of
CC zymogycetes-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zymogycetes-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zymogycetes-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.
CC The present DNA sequence represents an endoglucanase-related gene
CC sequence of the invention.
CC
XX
SQ Sequence 1041 BP; 225 A; 352 C; 248 G; 216 T; 0 other;

Query Match 32.9%; Score 382.8; DB 24; Length 1041;
Best Local Similarity 62.3%; Pred. No. 96-103;
Matches 628; Conservative 0; Mismatches 357; Indels 33; Gaps 1;

Qy	200	GTTCCTCCTCATCATCATATGATGTAGTTCCTATATAGTCAATCGGTGGCAATTGGATGGA	259
Db	44	GCTCCACTTACGCTGCTGAATGCAGCAAGGCTATGGCCAGTGTGTGGCAAGATGTGGA	103
Qy	260	GTGGACCTACCTGTTGTGAAAGTGGCTCTACTTTGGCTTGTCTCAAGRAGGCAACAATACT	319
Db	104	CTGGTCCCACTCTGCAOCCCTCGGCTTCACTGTGTAGTGTGCGAATAACAAGAGTGGT	163
Qy	320	ACTCTCAATGCTTTCGGGATCCCA-----CA	346
Db	164	ACTCTCAGTGTATCCCCACAGATCAAGTCAGGGTAACCCCAAGACCACCACCACCA	223
Qy	347	GTAACTAATGCTGTAAAGCTAGCAGCACCAGAAGACATCTACGAAGACATCTACTACCA	406
Db	224	CCACCAAGGTGTCACCTACCAACCAAGGCTCTCTGTCAACACCAAGGCCACCACCA	288
Qy	407	CCGCCAAGGCTACTGTCTACTGTCCACCACCAAGACAGTAACCAAGACAACTACCAAGACAA	466
Db	284	CCACCAACCAAGGCCCTGTGTACCAACCAAGAGGCACACTACTACTACCAACCAAGACCA	343
Qy	467	CTACCAAGACTAGCAGTACTGCGCTGCTTCTACTTCCACCTCTTCTTCTGCTGGTTTACA	526
Db	344	CCACCAAGACCAACACCAACCAAGGCTGCCACCACCACTCTCTTCTTCCAAACACTGGCTACA	403
Qy	527	AGGTGATCTCTGGCGGTAAATCTGGCAGTGGTTCCCAACTCGTATTATGGGATGTGTGTA	586
Db	404	GCCCCATTTCTGGTGGCTTCTCTGGAACCGTGCACCTACCGCTACTGGATTTGCTGTCA	463
Qy	587	AAGCTTTCTTGACCTGGCCTGGAAAAAGCTTCTGTCACTGTGTCTGTGTGACACCTGTGCCT	646
Db	464	AGCCCTCTTGGCGCTGGGACGGAAAGGCTCTGTAACTAAGACCTGTACTCACCTGTGCCA	523
Qy	647	CCAAATGGTATCTTTATTAGATGCCAATGCTCAAAAGTGGTGTGAACGGTGGTAATGGTT	706
Db	524	AGATGGTGTGAGCGGTCTCGGTTCGATGTCAGAGCGGTGGGTGGCGGCGCCAGGCT	583
Qy	707	TCATGTGTAAACAACAACCACTTGGGCTGTCAATGATGAGCTGCCTTACGGTTTTCGCTG	766
Db	584	ACATGTGCAATGACCAACAGCCCTGGGTTGTCAATGACGACCTTGCCTACGGTTTTCGCTG	643
Qy	767	CTGGCTTATGTGGCTCCAAAGAGCTGGATGGTGTGTGGCTGTATTGAATTGACCT	826
Db	644	CTGCCAGTCTCGGTAGCGCGGTGCCCTCTGCATTTCTGTCGGCTGTGTACGAGCTTACCT	703
Qy	827	TCACCTCTGGCGCTGCTTCTGGAAAAAGATGGTTGTTCAAGTTTACCAACACCGGTGGCG	886
Db	704	TCACCAACACTGCTGTGCTGTGGCAGAGATTTGTCTCGAGGTACCAACACCGGTGATG	763
Qy	887	ATTTAGGCTTAAACCACTTTGATTTGCAAAATGCCCGGTGGTGGCTTATCTTCAATG	946
Db	764	ATCTCAGCAACCAACCACTTTGATTTGCAGATGTCGCGCGGTGGTGTCTACTTCAACG	823
Qy	947	GCTGTGCTGCTCAATGGGGCGTCCCAATGATGGCTGGGAGCTAGATAGTGGTGTGCTCA	1006
Db	824	GCTGGCCAGTCCCAGTGGAAACCAACACCGATGGCTGGGGTGTCTCGCTATGGCGGTTATTA	883
Qy	1007	GCTCTGTCTGTGACTGTGCGCTCTCTTCTCCCTCTGCTCTTCAAGCTGGTGTGAAATGGAGAT	1066

Wed Jun 18 17:54:54 2003

884 GCTCTATTTTCAGAGTCGCAAGCTTCTACCCAGTTGCTGGTTCAGTGGAGAT 943
 1067 TCAACTGTTTCAAGAACTCTGATAACCTTACCATGACCTTCAAGAAAGTTACCTGCTCTG 1126
 944 TCGATGTTTCAAGAACTCTGATAACCTTACCATGACCTTCAAGAAAGTTACCTGCTCTG 1003
 1127 CTGAATTAACCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTG 1164
 1004 CCGAGATCATTCGCAAGACTGTTTGGAGCGCAAGTAA 1041

RESULT 13
 AAA62732 standard; DNA; 1043 BP.

AC AA62732;
 DT 25-SEP-2000 (first entry)

XX Endoglucanase nucleotide sequence 7.
 XX Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 KW animal foodstuff; ss.

XX Rhizopus oryzae.
 XX WO200024879-A1.

XX 04-MAY-2000.

XX 25-OCT-1999; 99WO-JP05884.

XX 23-OCT-1998; 98JP-0302387.

XX (MEIJ) MEIJ SEIKA KAISHA LTD.

XX Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
 PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;

XX WPI; 2000-365117/31.

XX Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs -

XX Claim 44; Page 132-134; 180pp; Japanese.

XX This sequence encodes an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AA62726-A62732) and primers (AA62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal foodstuffs.

XX Sequence 1043 BP; 212 A; 370 C; 291 G; 170 T; 0 other;

XX Query Match 24.3%; Score 283.4; DB 21; Length 1043;
 XX Best Local Similarity 59.6%; Pred. No. 2.5e-73;
 XX Matches 564; Conservative 0; Mismatches 356; Indels 27; Gaps 4;

QY 230 TCTATAGTCAATGCGGTGGCATTTGGATGAGTGAGTACCTACCTGTTGTAAGTGGCTCTA 289
 DB 101 TCTACGACAGTTCGCGGAAAGAACTGGAAACGCCACCTGCTGGAGAGCGGCTCGA 160

QY 290 CTTGCGTGTCTAGAGGCAACAAATCTACTCTCAATGCTTCCCGGATCCCAAGTA 349
 DB 161 CTTGC-----AAGGTCTCGAATGACTACTACAGCAGTGCCTGCCGAGCGGCTCCTCGG 214

QY 350 ACAATGCTGGTAAACGCTAGCAGCACCAAGAGAGATCTTACCAAGACATCTACTACCACCG 409
 DB 215 GAAAACAGTCGAGCGAGTCGGCCACACAGAGAGACACGACC-----GCTGCCACCA 265
 QY 410 CCAAGCTTACTGCTACTGTCACCAACCAAGAGAGTAAACCAAGACAACTTACCAAGACAATA 469
 DB 266 AGAAGACCAACGACCGCGCTTCAAGAGAGATACGACCGCTCCCGCCCAAGAGACCAAGCA 325
 QY 470 CCAAGACTAGCACTACTGCGCGTGTCTTCTTCACTTCCACTTCTTCTGCTGCTGTTACAGG 529
 DB 326 CCGTCGCCAAGGCTTCGACTCCGCTCAACTCGAGCAGCTGCTTCGCGGAAAGTACAGCG 385
 QY 530 TCATCTCTGCGGTAAATCTGCGAGTGGTTCCACAACCTCGTTATTGGGATTTGTTAAAG 589
 DB 386 CTGTACGCGGTGGCGCTAGCGGCAACGCGGTCACTACCGCTACTGCGACTGCTGCAAGG 445
 QY 590 CTTCTTGCAGCTGCGCTGGAAAAGCTTCTGTCACTGCTCTTCTTGCACACTGCTGCTCCA 649
 DB 446 CTTCTGCTGCTGCGCGCGCAAGGCTTAACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 505
 QY 650 ATGG---TATCTCTTTTATAGATGCCAATGCTCAAGTGGTTGTAACGGTGGTAAATGGTT 706
 DB 506 ACGCGCTCAGCGCTCTTAGCGACTCCAAACGCCCAAGTCCCGCTGCAACGCGGCAACTCCT 565
 QY 707 TCATGCTTAACAACAACAACCAACCTTGGGCTGTCAATGATGAGTCTGCTTACGGTTTGGCTG 766
 DB 566 ACATGTGCAACGACCAACGACCATGGCTGTCAACGACAACTTGTCTTACGGTTTGGCTG 625
 QY 767 CTGCTCTTATTTGGTCTGCAACGAGCTGGATGGTGTGTTGCTGCTGTTATGAATTCACCT 826
 DB 626 CGGCTGCCATTTAGCGCGGTGGCGAGAGCGGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 685
 QY 827 TCATCTTCTGCGCTGCTTCTGGAAGAAGATGGTTGTTCAAGTTACCAACCGGTGGCG 886
 DB 686 TCACCTCACACAGCGTGTCTGCGAAGAAGATGGTTCGTCAGGTCCACCAACACTGGCGGTG 745
 QY 887 ATTTAGG-----CTCTAACACTTTGATTTGCAATGCCCGGTGGTGGCGTTGGTA 937
 DB 746 ACCTTGGCAGCTCGACCGGTGCCACTTCGATCTCCAGATGCCCGCGCGGTTCGGCA 805
 QY 938 TCTTCAATGGCTGTGCTGCTCAATGGGCGCTCCCAATGATGCTGGGAGCTAGATATG 997
 DB 806 TCTTCAACGATGCTGCTCCAGTGGCGCTCCCAACGAGCGGTGGCGGTTCGGCTACG 865
 QY 998 GTGGTCTCAGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1057
 DB 866 GCGGCATCAGCTCCGCGCAGCGACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 925
 QY 1058 AATGGAGATTCAGTGGTTCAAGAACTCTGATAACCTTACCATGACCTTCAAGGAGTTA 1117
 DB 926 AGTGGCGCTTCAACTGTTTCAAGACCGCGACACACCGTCCATGACCTTACAGGAGGTCA 985
 QY 1118 CCTGCTCCTGCTGAATTAACCTTACCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1164
 DB 986 CTTGCCCAAGGAGATCACCGCTTAAGACCGGATGCTCGCGCAAGTAA 1032

RESULT 14
 AAL43250
 ID AAL43250 standard; DNA; 1043 BP.
 XX AAL43250;
 AC AAL43250;
 XX 22-AUG-2002 (first entry)
 DT Rhizopus arrhizus endoglucanase-related codon-optimised DNA sequence.
 DE Zygomyces-originated endoglucanase; cellulose binding domain;
 XX fibre processing; waste paper de-inking; paper pulp; ds; gene.
 KW Rhizopus arrhizus.
 OS Synthetic.
 XX

us-09-807-933b-10.rng

Wed Jun 18 17:54:54 2003

CC cellulase. This combination improves cleaning performance
 CC (maintains colours and removes stains), and softens and
 CC improves the feel of cotton fabrics without causing losses in
 CC weight or tensile strength.

XX Sequence 984 BP; 229 A; 270 C; 227 G; 258 T; 0 other;

SQ Query Match 19.0%; Score 221.4; DB 19; Length 984;

Best Local Similarity 63.9%; Pred. No. 5.8e-55; Indels 9; Gaps 2;

Matches 371; Conservative 0; Mismatches 201;

547 TCTGCGATGTTCCACAACTCGTATTGGATTGTTAAAGCTTCTTGACAGCTGGCT 606

151 TCTGAGCGGTCACTTACTCGATCTGGGATTGTCGAAGCTTCTTGCTTGGAGC 210

607 GGAAAGCTTCTGTCACCTGCTTGCACCTGCTCCCAATGATCTCTTTATTA 666

211 GGAAAGCTGCTGTCACCGCTGCTTAACTTGTGATAAGAACGACACCCATTCC 270

667 GATGCCAATGCTCAAGTGGTTGTAA---CGGTGGTAATGGTTTCATGTGTAACAAC 723

271 AACACAAATGCTCAACGGTTGTGAGGGTGGTGGTCTGCTTATGCTTGACCAACTAC 330

724 CAACCTGGGCTGCTCAATGATGAGCTGCTTACGGTTTCGCTGCTGCTCTATTGTGGC 783

331 TCTCCCTGGGCTGCTCAACGATGAGCTTGCCTACGGTTTCGCTGCTTACCAAGATCTCGGT 390

784 TCCAAAGAGCTGGATGGTGTGCTGCTGCTTAAATGACCTTCACTTCTGGGCTGCT 843

391 GGCTCCGAGCCAGCTGGTGTGCTGCTTGTGCTATGCTTTCACACTTGGCCCGCTC 450

844 TCTGGAAGAAGATGGTTGTTCAAGTTACCAACCGGTGGCGATTAGGCTCTAACAC 903

451 AAGGGCAAGAAGATGATCTCCAGTCCCAACACTGGAGTGATCTCGGCGACACAC 510

904 TTTGATTTGCAATGCCGCTGGTGGCTGCTGCTTATCTTCAATGGCTGCTGCTCAATGG 963

511 TTCGATCTCATGATGCCCGCGGTGGTGTGCTGCTGCTTCTCGAGGCTGCACCTCTGAGTTC 570

964 GCGCTCCCAATGATGGCTGGGAGCTAGATATGGTGGTGTGCTGCTCTCTGACTGT 1023

571 GG-----CAAGGCTCTCGGCGGTGGCCAGTACGCGGTATCTCTCCGAGCGAATGT 624

1024 GCCTCTCTCTCTGCTCTTCAAGCTGGTGTGTAATGGAGATTCAACTGGTTCAAGAAC 1083

625 GATAGCTACCCCGAGCTTCTCAGGACGGTTGCCACTGGCGATTGCACTGGTTCGAGAAC 684

1084 TCTGATTAACCTACCATGACCTTCAAGGAGTTACCTGCC 1124

685 GCCGACAACCTGACTTCACTTTGAGCAGGTTCACTGCC 725

Search completed: June 17, 2003, 11:49:16
 Job time : 258.88 secs